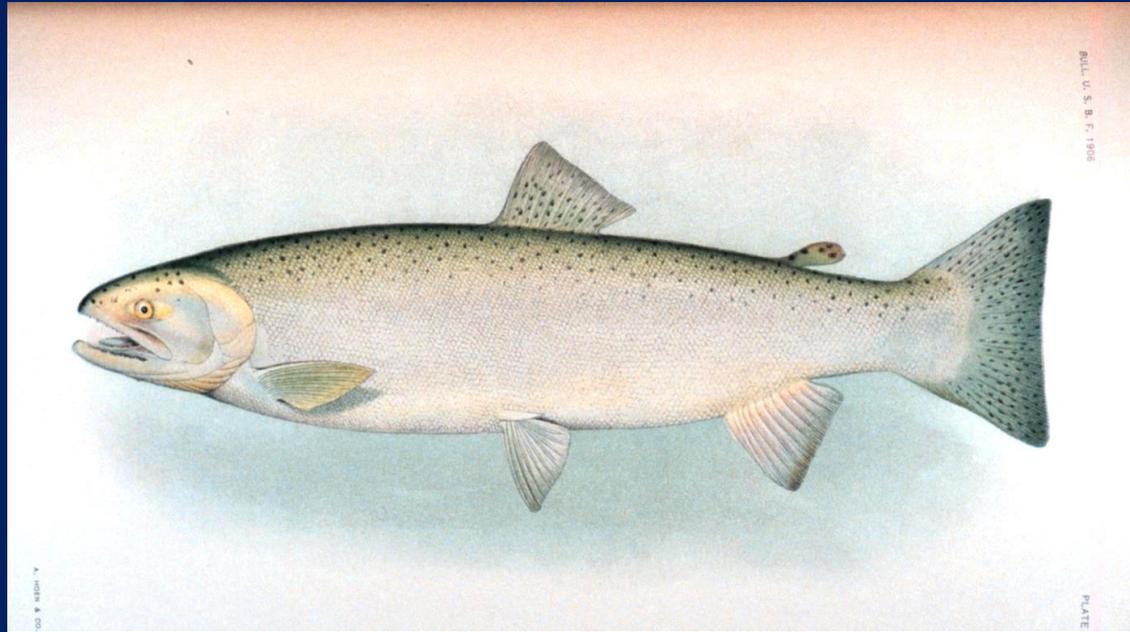


# Steelhead At Risk Report



**August 7, 2015**

**Fish and Wildlife Commission Meeting**

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Jeremy Cram, Research Scientist, Fish Program

# Outline

- Purpose and Objectives of Report
- Steelhead in Washington
- Regional Trends and Threats
- At-Risk Populations and Actions

# Background and Goal of Report

- Statewide Steelhead Management Plan

Action 1.a

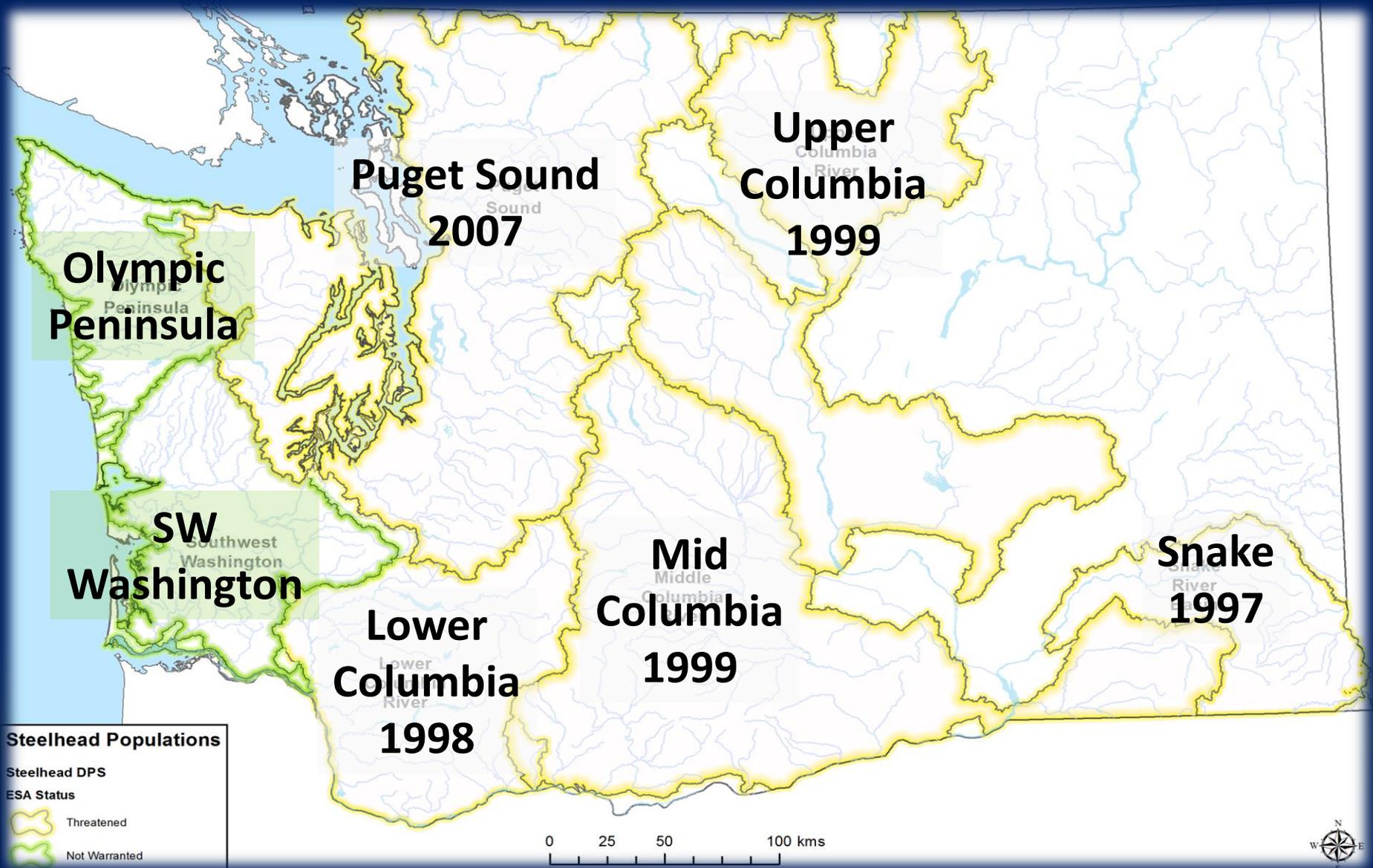
“...report on at risk wild steelhead stocks...  
summary of limiting factors and management  
actions...recommend and implement new actions...”

Identify key threats and issues and drive priorities

# Briefly, Steelhead Life History

- Repeat spawners
  - Average 2 years in fresh water (1-4 yrs)
  - 1-3 years salt water
  - 2 different life history strategies
    - Winter (Ocean Maturing)
      - Return in November – May
      - Peak spawning mid-April – mid-May
    - Summer (Stream Maturing)
      - Return in April – October
      - Spawn timing overlaps with winter steelhead, peaks a little earlier
  - Anadromous and resident form of *O. mykiss*
- 
- A group of steelhead trout swimming in a stream over a rocky riverbed. The fish are silvery with a pinkish-red stripe along their sides and dark spots. They are swimming towards the right of the frame.

# Steelhead in Washington



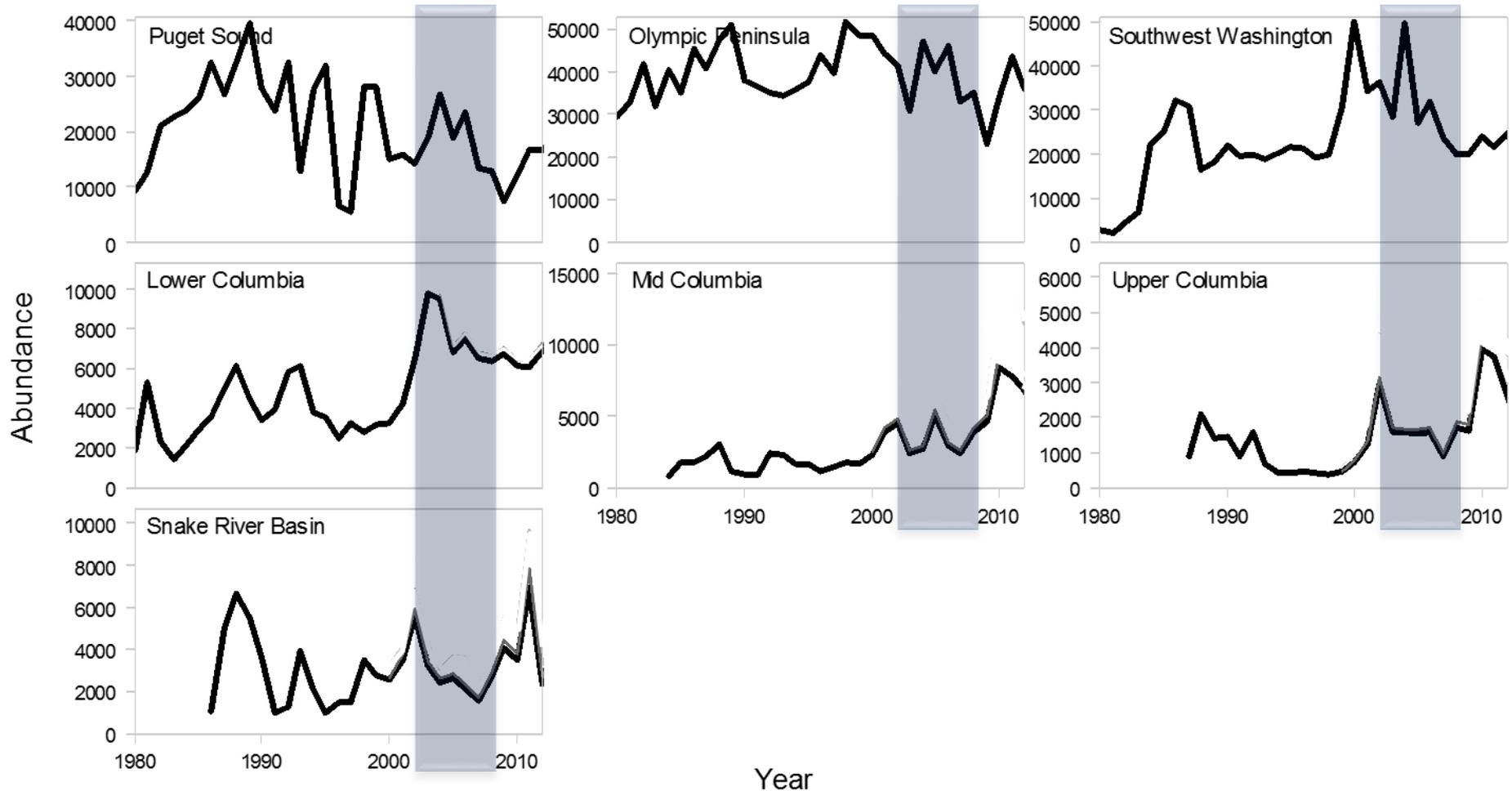
# Historic Perspective on Abundance

- Currently < 10% of historic run sizes
  - 600,000-800,000 in Puget Sound
  - 100,000-200,000 along North Coast
  - >550,000 in Columbia River

## Contributing factors

- Major declines from logging, splash dams, mining, fishing and canneries
- Hatcheries and continued habitat loss and wild fish declines
- Dam construction and continued declines to current era of relative abundance

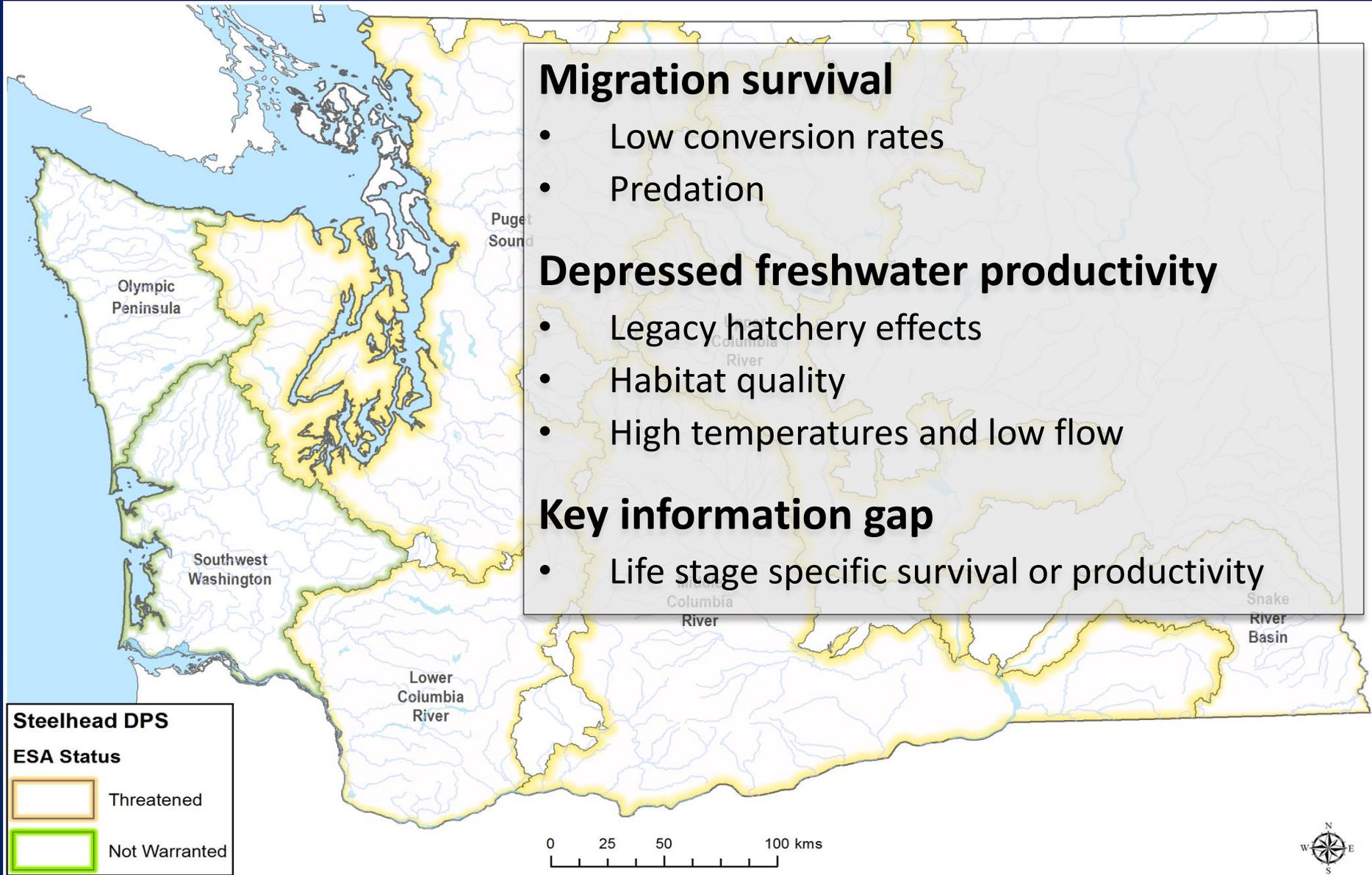
# Recent Trends in Abundance



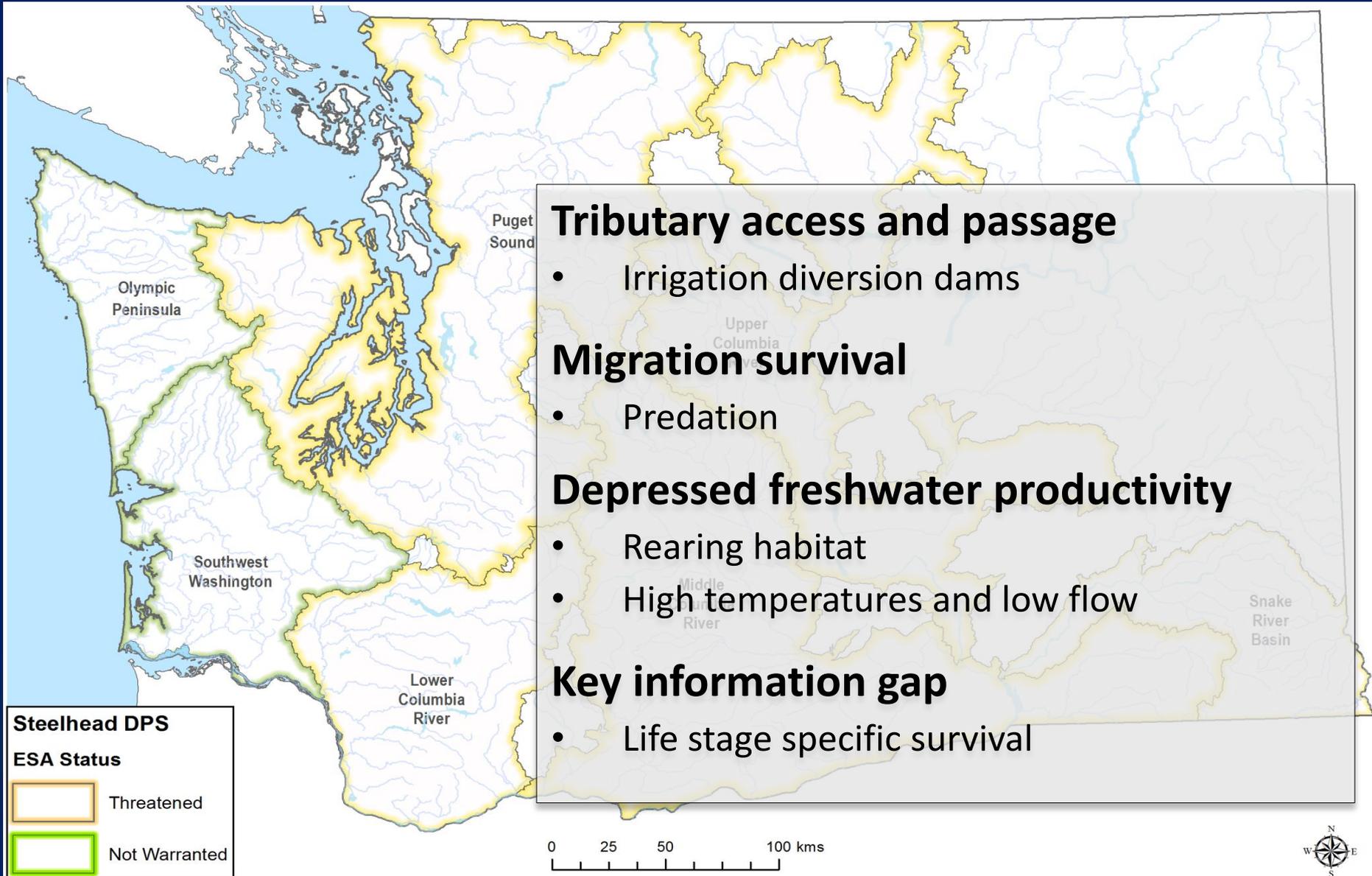
# Regional Threats and Priorities

- Relied on available data
  - Abundance, productivity, spatial structure, diversity
- Existing Recovery and Management Plans
  - Regional Recovery Plans
  - Sub-Basin Plans
  - Statewide Steelhead Management Science Paper

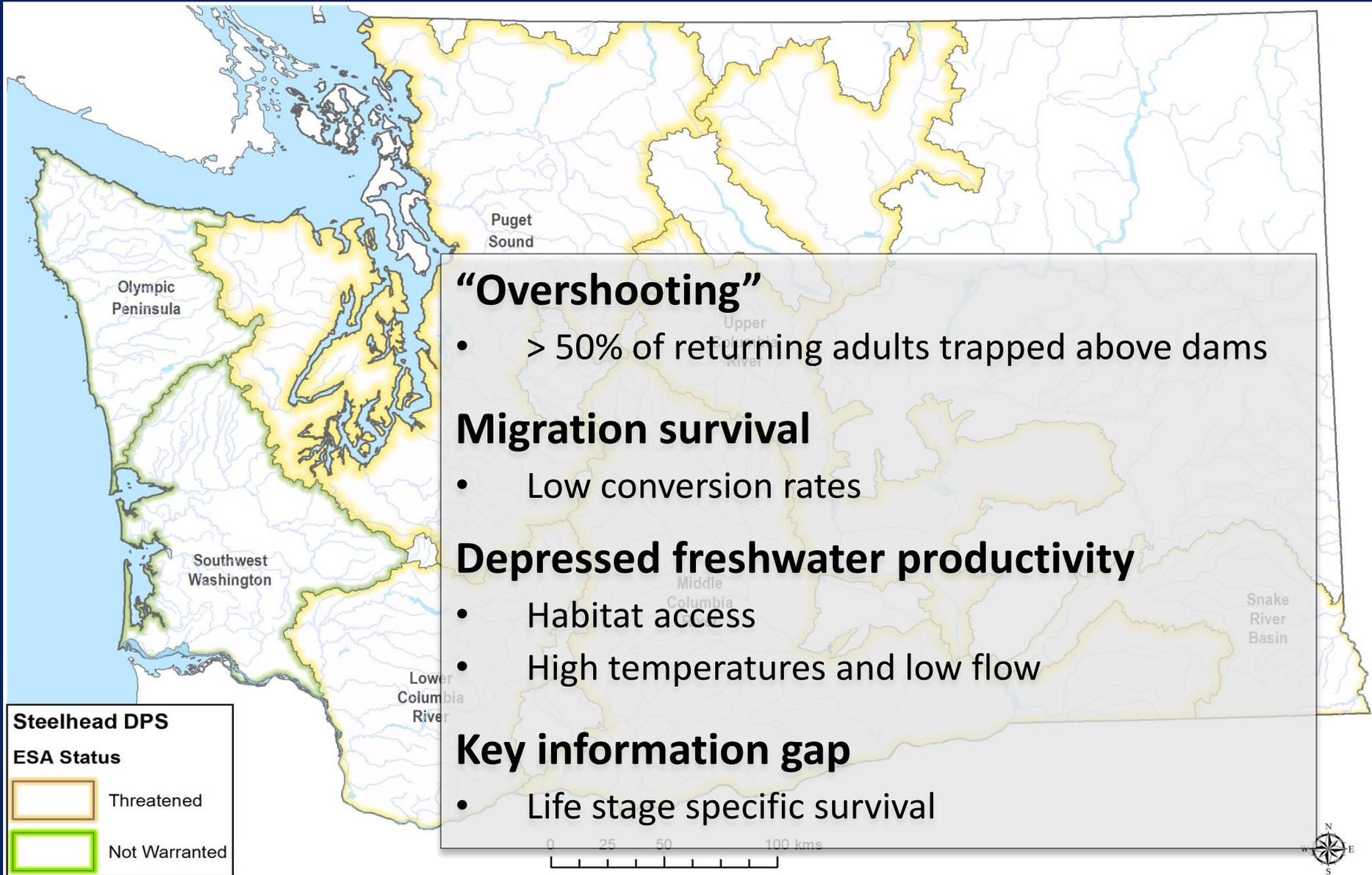
# Upper Columbia



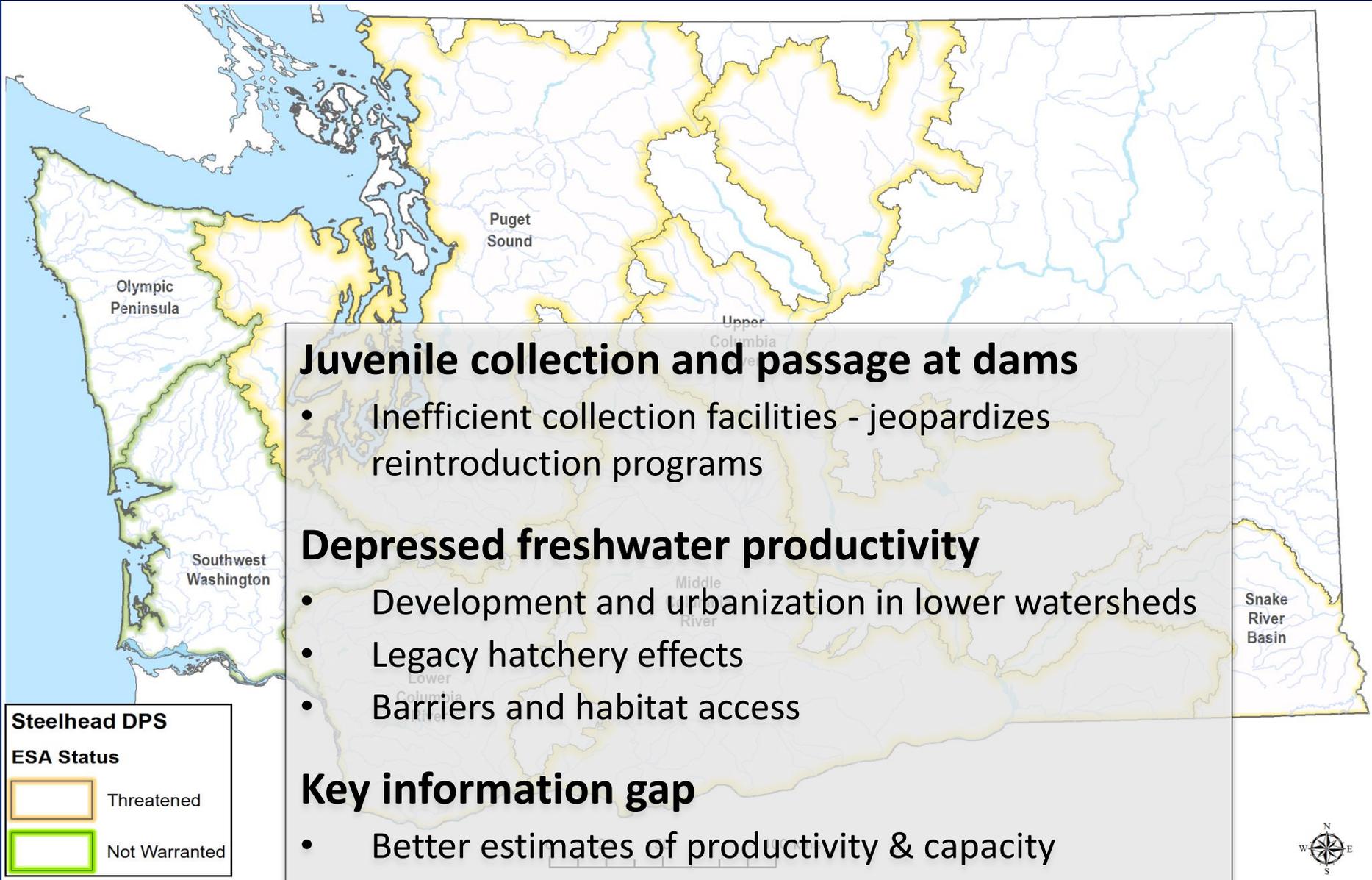
# Middle Columbia



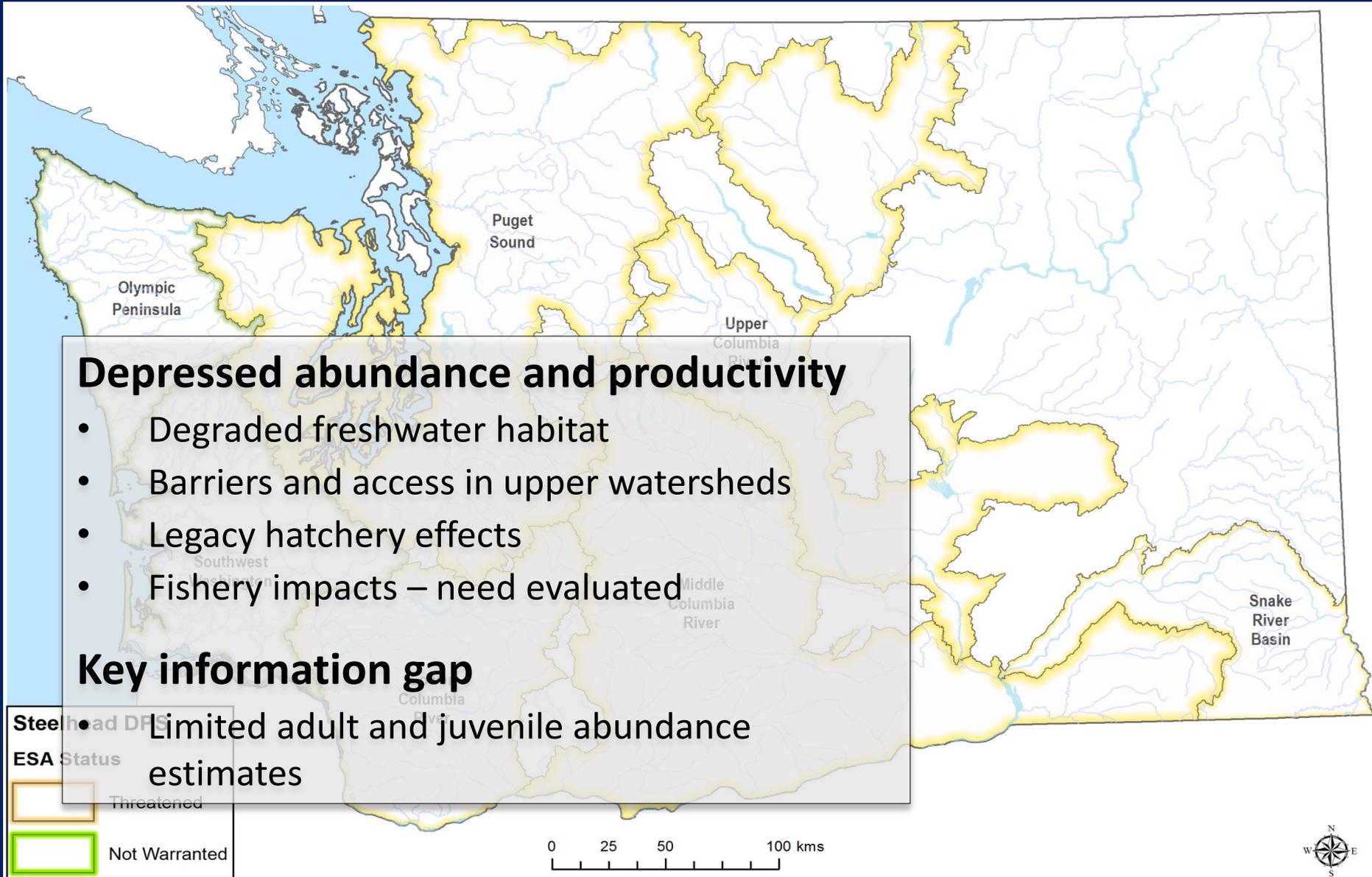
# Snake River



# Lower Columbia



# SW Washington (Not ESA Listed)



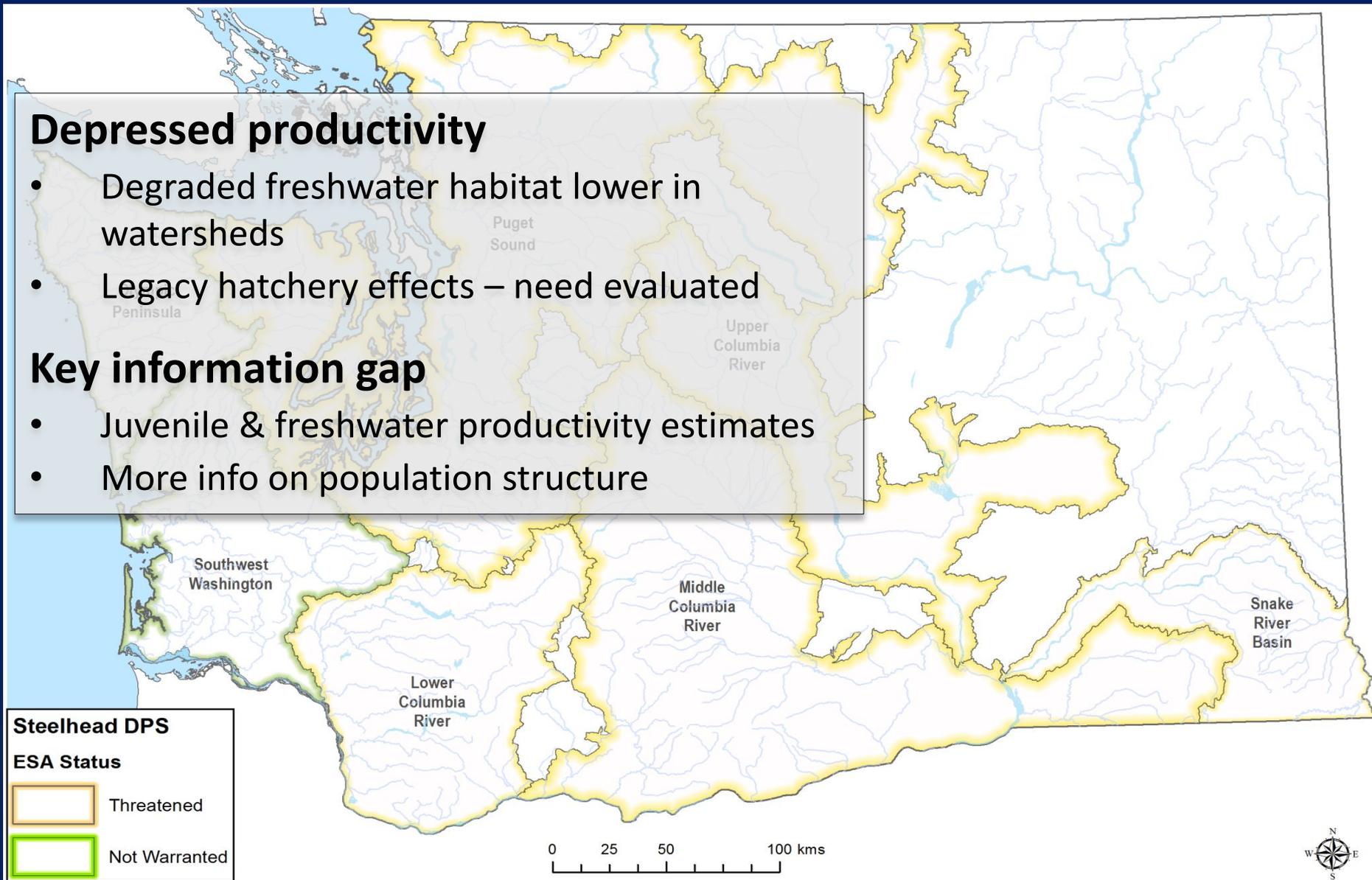
# Olympic Peninsula (Not ESA Listed)

## Depressed productivity

- Degraded freshwater habitat lower in watersheds
- Legacy hatchery effects – need evaluated

## Key information gap

- Juvenile & freshwater productivity estimates
- More info on population structure



# Puget Sound

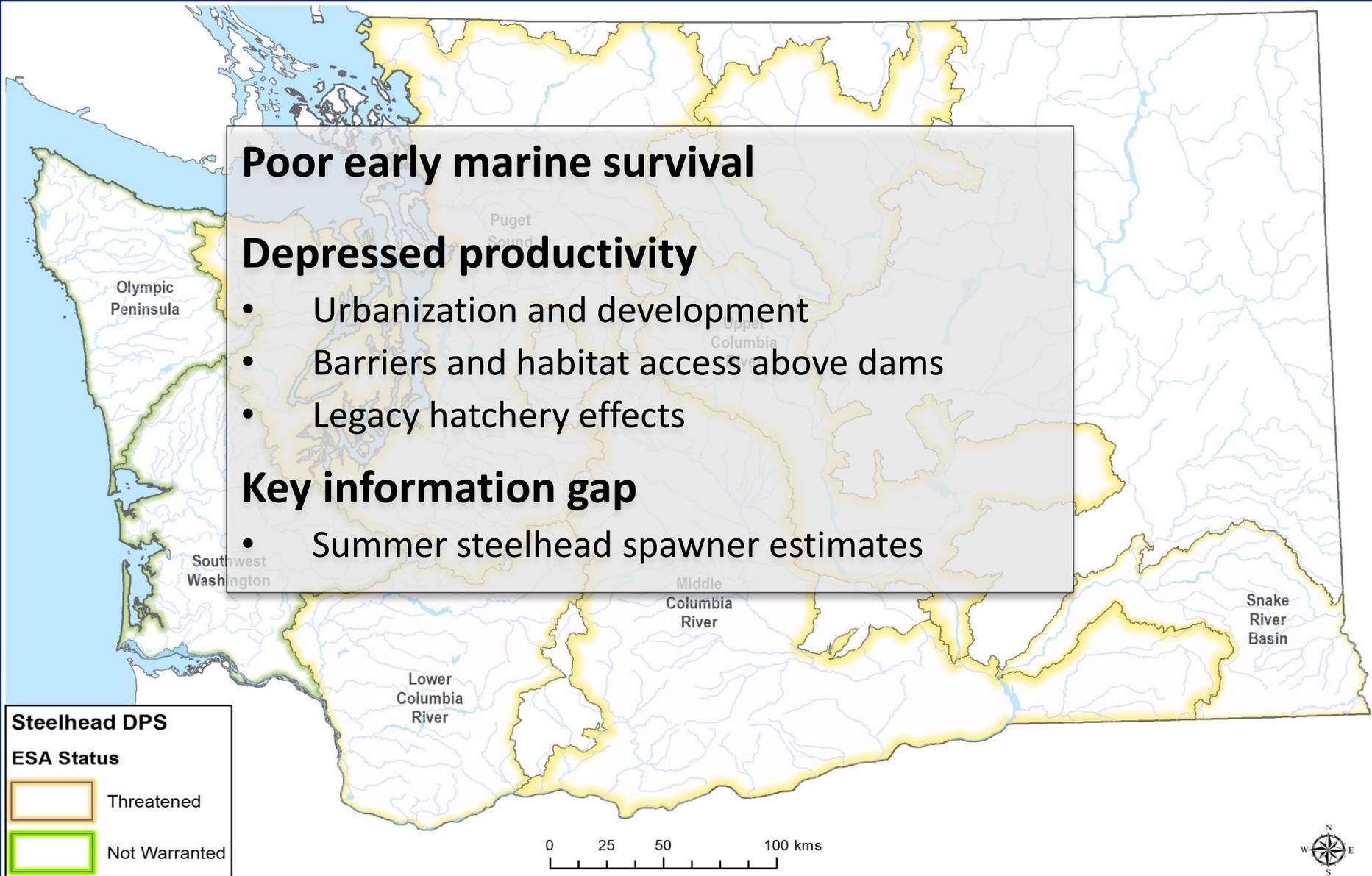
## Poor early marine survival

## Depressed productivity

- Urbanization and development
- Barriers and habitat access above dams
- Legacy hatchery effects

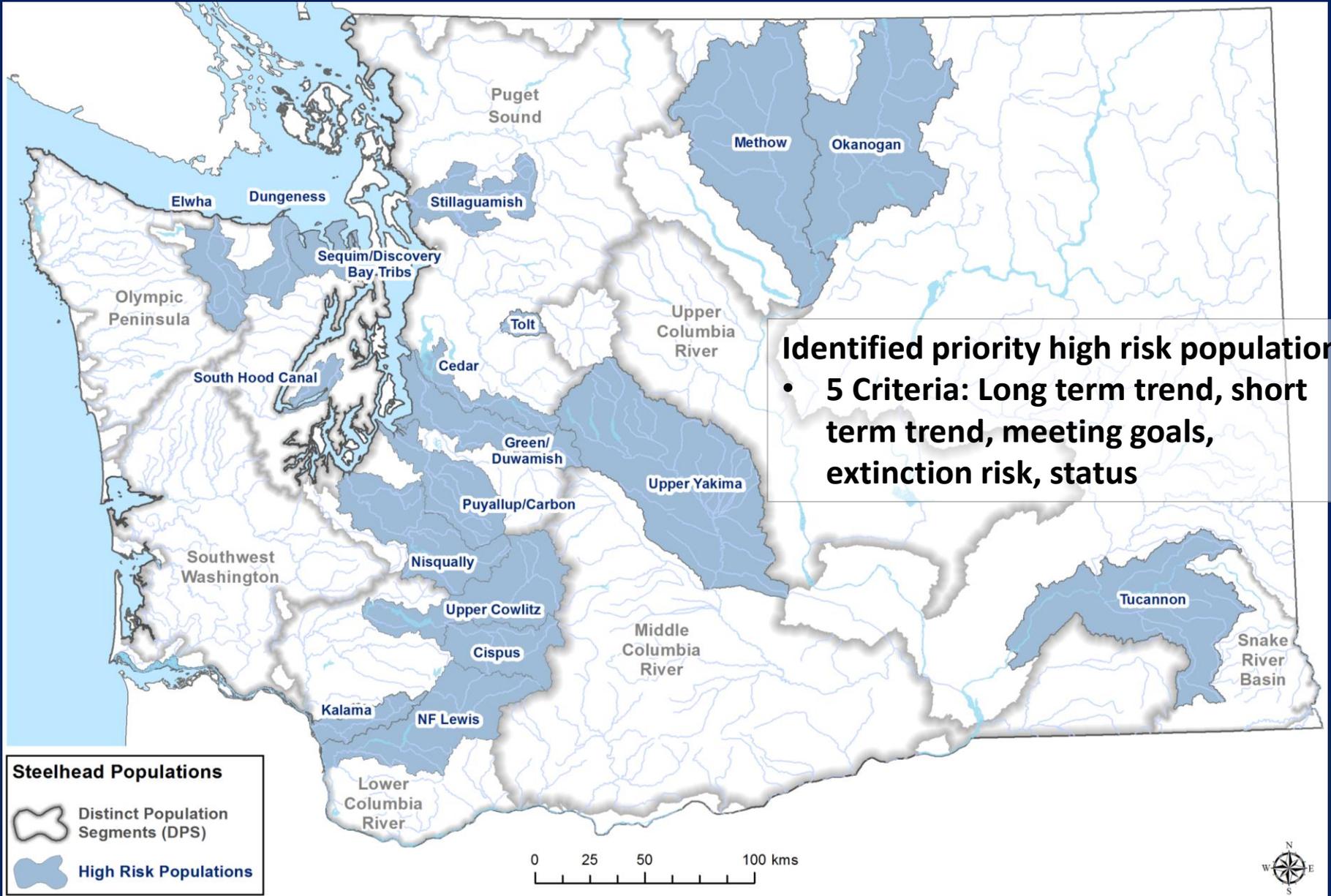
## Key information gap

- Summer steelhead spawner estimates

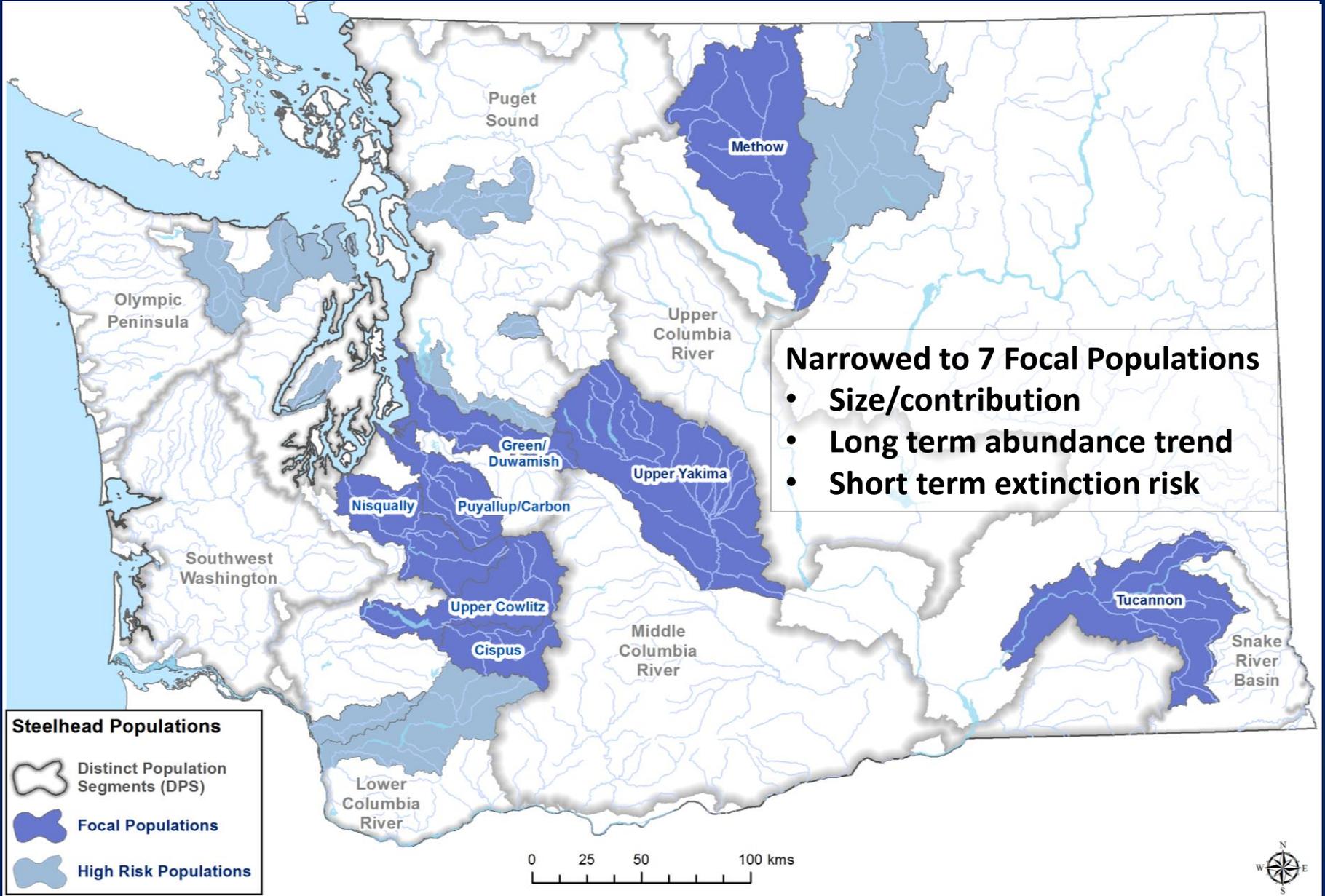


# Population Level Assessment

# High Risk Populations



# Focal Populations

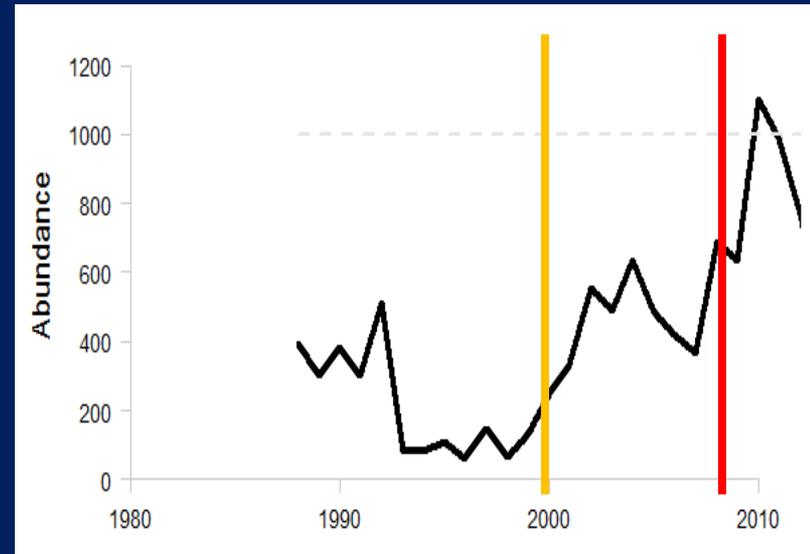


# Upper Columbia: Methow

ESA listed  
SSMP

## Key Threats

1. Downstream migration survival
  - Low conversion rates, predation
2. Legacy hatchery effects and contemporary pHOS levels
3. Rearing habitat degradation



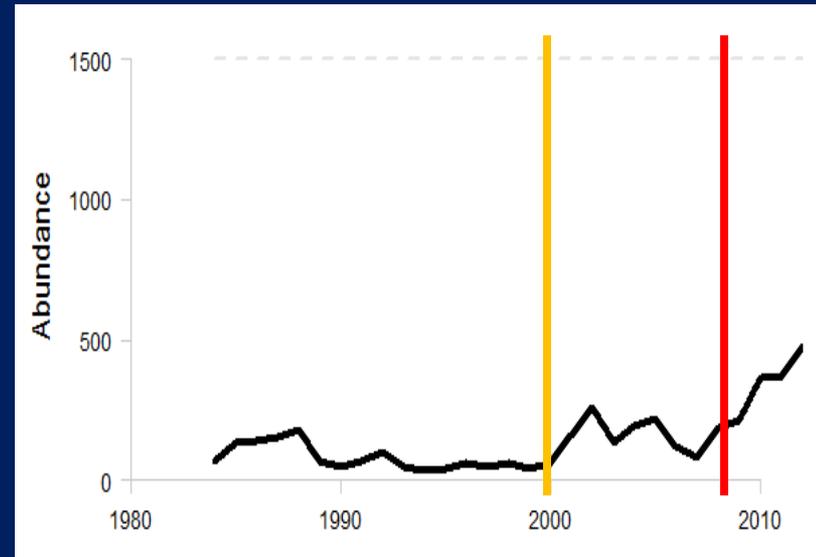
## Key Actions

1. Pilot life cycle monitoring and modeling
  - Identify cause of low conversion rates
  - Inform recovery action planning
2. Evaluate success of hatchery program changes

# Middle Columbia: Upper Yakima

## Key Threats

1. Irrigation diversion dams
  - Access to habitat
2. Downstream migration survival
  - Predation, low conversion rates
3. Temperature, flow, habitat loss



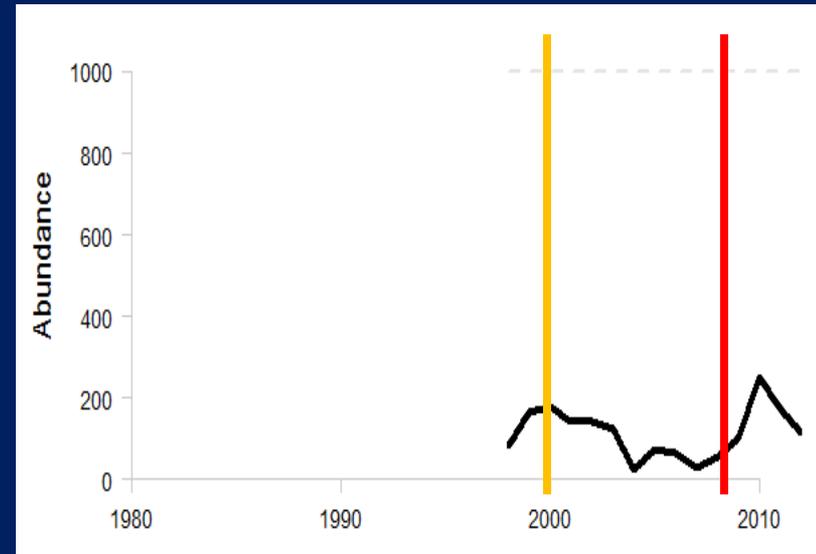
## Actions

1. Continue work through Yakima Integrated Plan for migration and irrigation diversion dams
2. Pilot life cycle monitoring and modeling

# Snake River: Tucannon

## Key Threats

1. Adult “overshooting”
2. Migration survival
3. Temperature and flow issues



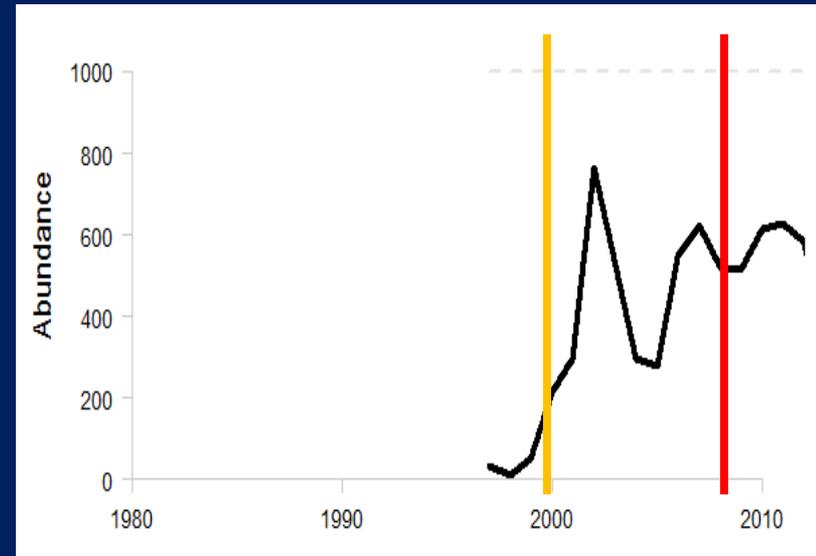
## Actions

1. Change hydro operations to allow adult downstream access
  - Columbia Basin Form (action agencies, tribes, states)
  - Little Goose and Lower Granite dams
2. Pilot life cycle monitoring and modeling

# Lower Columbia: Upper Cowlitz & Cispus

## Key Threats

1. Inadequate downstream passage at Cowlitz Falls dam



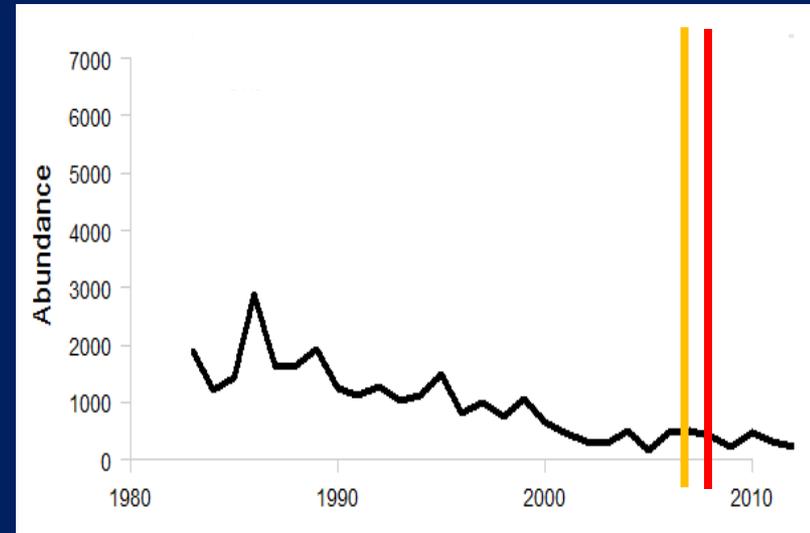
## Actions

1. Work with the PUD to increase juvenile collection efficiencies from below 30% to above 75% (original license agreement above 95%)
2. Provide demographic population boost from reintroduction hatchery programs
  - Monitor progress and adaptively manage through stages of recovery

# Puget Sound: Puyallup/Carbon

## Key Threats

1. Poor early marine survival
2. Lower river habitat degradation
3. Passage survival at upper watershed dams



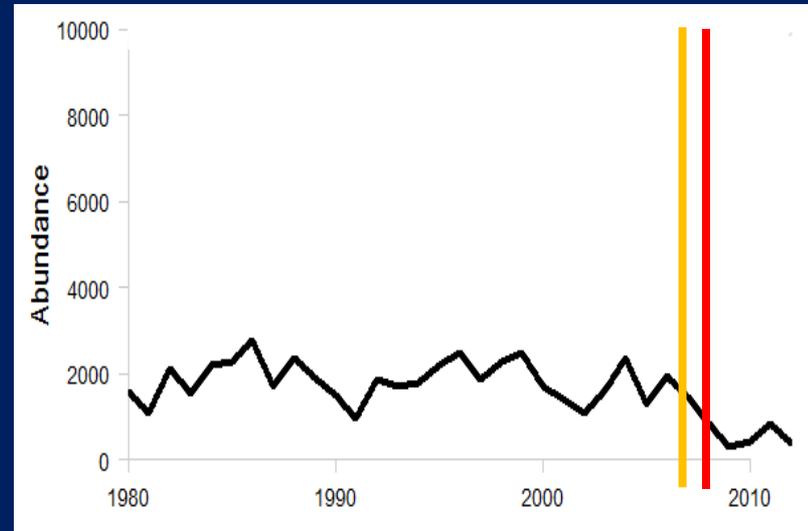
## Actions

1. Explore and develop contingency plans (e.g., kelt reconditioning, barging, temporary demographic boost)
2. Resolve early marine survival issues
3. Restore South Prairie Creek (spawning trib)
4. Provide access above Electron dam (increase habitat)
5. Continue with freshwater protection and restoration actions

# Puget Sound: Green

## Key Threats

1. Puget Sound early marine survival
2. FW habitat loss/degradation
3. High hatchery geneflow historically
4. Access above Howard Hanson blocked



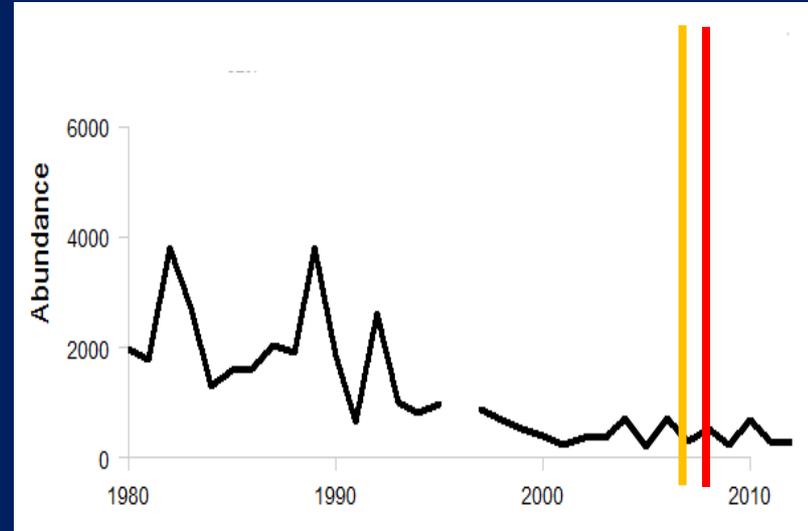
## Actions

1. Explore and develop contingency plans (e.g., kelt reconditioning, barging, temporary demographic boost)
2. Resolve early marine survival issues
3. Restore key tributary passage – Soos and Newaukum Creeks
4. Monitor hatcheries and adaptively manage
5. Provide access above Howard Hanson dam

# Puget Sound: Nisqually

## Key Threats

1. Poor early marine survival



## Actions

1. Explore and develop contingency plans (e.g., kelt reconditioning, barging, temporary demographic boost)
2. Resolve early marine survival issues
3. Continue freshwater and estuary restoration and protection actions

# Summary

- Completed statewide assessment
- Identified key regional threats and issues to drive broader priorities
- Identified high risk and priority focal populations to drive short term and medium term specific actions
- Implement actions
- Assess progress annually

# Thank You



Steelhead At Risk Core Team:  
Jeremy Cram, Neala Kendall, Thomas Buehrens, Anne Marshall, Laurie  
Peterson, Bob Leland, Todd Seamons, Andy Weiss

**Photo Credit: John McMillan**